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ABSTRACT

This final report summarizes a study of the availability of library services for health professionals in Southeastern Michigan, begun in 1964 by the Wayne State University Medical Library, the Detroit Medical Library Group, the Wayne County Medical Society, and the Greater Detroit Hospital Community Council. Objectives of this investigation were to determine: (1) what groups of biomedical professionals had library service, and the extent of that service, (2) cost of minimal access service on a community basis, and (3) administrative mechanisms to improve and develop library networks. Study data were obtained from the institutions of the Detroit Medical Library Group by observation, interviews, and questionnaires. These data covered: (1) interlibrary loans, (2) reference services, (3) bibliographic controls and administrative mechanisms, and (4) the biomedical community. The resulting studies primarily described the existing situations. Specific methodologies and conclusions on the basic areas covered are summarized in this report, and the four major contributions of this project are discussed. Reports of the separate studies are ED 032 890, ED 032 891, ED 032 892, LI 001 829, LI 001 830, LI 001 831, LI 001 832, LI 001 833, and LI 001 838. (JB)

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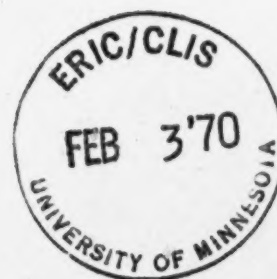
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REPORT

No. 53



Relationships of Biomedical
Information Services
Final Report

WAYNE STATE UNIVERSITY
SCHOOL OF MEDICINE
Library and Biomedical
Information Service Center
Detroit, Michigan

LI 001834

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Relationships of Biomedical
Information Services
Final Report*

Report No.53

by

Gwendolyn S. Cruzat

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The 1964 report by the President's Commission on Heart Disease, Cancer and Stroke stated that

"The cutting edge of the country's medical research programs may be blunted by the growing inability of scientists to gain quick and easy access to biomedical data they need. Teachers and students are hampered in their educational pursuits. Of direct and immediate importance to the health of the nation are urgent needs of medical practitioners of all types for more ready access to the growing body of medical information. Inefficiency in the medical library network creates an insidious ignorance which neither science nor the practice of medicine can condone. It results in the unplanned and unnecessary duplication of research efforts. It postpones the application of new knowledge potentially important to the alleviation of human suffering."*

The implications of this statement are easily recognizable. First, the extensiveness and proliferation of knowledge in the biomedical sciences requires that medical researchers, teachers, students and practitioners and other types of workers in the health sciences must have access to the scholarly record of medicine if the immediate health demands of the nation are to be met; second, the variation in function, services and size of biomedical libraries of the nation makes necessary an operative and interdependent biomedical library system or network; and third, the abundance of value judgments and lack of objective data about biomedical libraries require quantitative and qualitative investigation into their operations, activities and services, as well as investigation regarding composition of the biomedical community having access to library services.

A system or network can be defined as a complex unit formed of many diverse parts with a common purpose joined in regular interaction or interdependence. When this definition is applied to biomedical libraries, they, struggling to emerge as a network, whether it be national, regional or local are faced with the realization that this entity which deals with men, devices and documents must function as a social institution. This is not an immediate realization. Almost all libraries, including biomedical libraries, tend to think of themselves as individual units, independent and self-sufficient. The demands of society regarding

* U.S. The President's Commission on Heart Disease, Cancer and Stroke. Report to the President. A National Program to Conquer Heart Disease, Cancer and Stroke. Vol. 2. Washington, D.C.; USGPO, 1965, p.382.

health care have forced biomedical libraries to begin to re-construct their goals and objectives in more cooperative terms and to recognize themselves as components of a biomedical information system.

In order to define the extent of cooperation and the role of individual libraries within this complex and arrive at operable conclusions, some quantitative analyses must be made of these units, their services and their respective biomedical communities. These analyses can be made on an individual basis, but only as they relate to the local, regional or national network. To document the innumerable evaluations made of biomedical libraries with the intent of improving library services would be impossible here, but one does not have to look closely to observe that these approaches have been primarily restricted to use studies, studies about collections and studies of policies which are all geared to making value judgments about individual institutions. Few of these studies have been designed so that findings are applicable to other libraries, therefore the utility of such studies to other than the originators is doubtful.

Keeping in mind that meeting the needs of total health care personnel of any given biomedical community must out of necessity involve all the biomedical libraries of the community to assure equal access to the scholarly record by all, Wayne State University Medical Library (WSUML), the Detroit Medical Library Group, the Wayne County Medical Society and the Greater Detroit Hospital Community Council began in 1964, as a cooperative venture, the study of the availability of library services in providing access to the scholarly record of medicine for health professionals in Southeastern Michigan.

AIMS AND OBJECTIVES

The specific aims of this investigative project were to study (1) the relationship between the individual and his institutional source of literature, and (2) the relationship between institutions' information services. Further, this analysis would evaluate the sources, content and significance of the literature of groups of biomedical personnel, interpret the circulation pattern of documents between institutions, describe and evaluate the techniques for the transmission of documents between institutions and evaluate the relative adequacy of information services in institutions for the various biomedical groups. This study was to provide a beginning for defining quantitatively the responsibilities for library services within the intellectual and operational environments that form the biomedical institutional complex.

More specifically, the objectives of this investigative study were to determine:

1. What groups of biomedical professionals had library service,
2. The extent of the services,
3. The cost of minimal access service on a community basis, and
4. The means to create administrative mechanisms to improve and develop library networks.

GENERAL DESIGN

In any study on institutional relationships areas must be identified, delineated and systematically investigated. It is not enough to say that there must be equal access to the scholarly record by all health professionals of a biomedical community. There must be a conceptual framework around which one can develop a rationale for approach to the problem. The framework in this instance is the biomedical library network and its relationship to the biomedical community.

In addition, there must be a method of procedure by which one can arrive at workable solutions regarding the problem. Generally stated, this procedure is as follows:

1. Collection of data essential to the problem,
2. Selection of one or more tentative solutions to the problem,
3. Evaluation of these alternate solutions to determine which is in accord with all the data, and
4. The final selection of the most likely solution.

In other words, there must be a basis for action through analysis of data that can be shown to be logically linked and related to existing institutions.

The basic internal organizational pattern of biomedical libraries and prior studies by WSUML determined the bases for methodology for these investigative works. Data were collected from the institutions of the Detroit Medical Library Group, comprised of biomedical libraries in Southeastern Michigan and including WSUML, the Wayne County Medical Society and the Greater Hospital Community Council. These data were on 1) interlibrary loans, 2) reference services, 3) bibliographic controls and administrative mechanisms, and 4) the biomedical community. Studies were primarily descriptive in nature; that is, pertinent and precise information was secured about an existing situation. This information was usually obtained by careful observation and recording

and by use of both interview and questionnaire survey methods. Follow-ups, when necessary, were prompt so as to insure completion where there were undefinable or insufficient data. Specific methodologies with respect to the four basic areas and one additional area with conclusions relevant to the four areas are outlined below.

1. Interlibrary Loans

- a. The number of interlibrary loans were tabulated according to institution and compared to the total figures as well as to figures of other institutions.
- b. The requesters of interlibrary loans were identified in terms of specific biomedical groups, e.g., medical staff, house staff, researchers.
- c. Analyses were made of interlibrary loan requests to determine the purpose for which the material was needed, e.g., research, educational or clinical use.
- d. Interlibrary loan cost figures were determined for selected hospital health sciences libraries and related to cost-time averages for overall efficiency and productivity.

2. Reference Services

The users of reference services at WSUML were identified by professional group, e.g., residents, nurses, physicians, students. The requests were categorized according to content; the steps used by librarians were recorded sequentially; and the time given to this service was recorded with regard to whether it was requested by telephone or in person.

3. Bibliographic Controls and Administrative Mechanisms

- a. Bibliographic control techniques, e.g., Library of Congress and National Library of Medicine, were compared as to advantages and disadvantages for both hospital and academic health sciences library environments.
- b. Titles necessary for local hospital health sciences libraries were identified and evaluated by health sciences librarians.
- c. Serials needs and availability were revealed through thorough examination of interlibrary loans and through examination of serials available in four Michigan libraries and of serials available in microform.
- d. New administrative mechanisms arising from continuing examination of data relating interdependency among health sciences libraries in Southeastern Michigan were explored.

4. The Biomedical Community

- a. The number of institutions employing health care personnel in Southeastern Michigan was determined.
- b. The actual number of physicians with access to library services was determined.
- c. The number of physicians in graduate medical education programs in Southeastern Michigan was determined.

5. Biomedical Librarianship and Social Institutions

The rationale of the health sciences library as an object of study and its place among social institutions of our society were explored.

ANALYSIS OF DATA

The analyses of data obtained for study follow the same pattern as that presented in the general design.

Interlibrary Loan

A review of literature on interlibrary loans from 1876 to 1965 specifically identified problems which prevented sharing of resources through this mean and further illustrated that librarians are faced with much the same problems in 1965 as 1900. Librarians and library users are inadequately informed of the function of interlibrary loan procedures and services. (3)* Twenty-nine biomedical institutions provided complete data on all their interlibrary loan transactions for six months (January-June 1966). (11,37) Quantitative relationships of document flow were dealt with both within the network and outside the network. Data revealed that these 29 institutions completed 7,630 interlibrary loan transactions; 6,061 were requested by network institutions and 1,569 were lent by them. Of 6,479 total items requested, 4,715 or 72% were supplied among the medical library network institutions and another 10% were obtained from institutions not within the network but within Southeastern Michigan. Of the 10% that were secured outside the area, one-half were generated by WSUML. An additional 1,151 lending transactions were completed for 121 institutions outside network libraries. The 82% level of supplying requests from local resources indicated strong use of these resources.

* Numbers in parentheses refer to the bibliography.

When data from the medical library survey network were projected to cover a twelve-month period, 29 institutions were found capable of generating and supplying over 13,000 interlibrary loan transactions. (11) Based on studies made at WSUML, cost to provide this service would be an important budget item. Upon examining the time involved to process 514 requests supplied both in the original and in photocopy, the cost to lend an item was fifty-six cents.* The borrowing cost, based on time for processing and including the charges for photoduplication of 100 transactions, was \$2.31 per request. (7) Cost of the borrowing transaction in three hospital health sciences libraries was also determined. The result was three different cost figures and numerous differences in procedural policies, in the relationships of procedures and in unit activity performance. These data suggested that there should be thorough examination of procedures and policies and analysis of all worksteps to insure maximum efficiency performance before arriving at any solution towards equality in service. (19)

Since WSUML was responsible for supplying 80%, or 3,792 of the 4,715 requests provided by library network institutions, the efficacy of interlibrary loan procedures was examined by a close look at the causes for unusual variation in data collected on the number of unfilled requests for a seven month period. (11) Distribution according to the nine categories in which WSUML placed its unfilled loans was as follows: 1) in circulation, 31.3%, 2) titles not owned, 16.2%, 3) in bindery, 16.0%, 4) reference unidentifiable, 8.9%, 5) cannot locate, 8.0%, 6) not yet received, 7.7%, 7) volume not owned, 7.7%, 8) on class reserve, 3.2% and 9) on reference, 1.0%. A recheck of items designated "in circulation" revealed that more than three-fourths were serials. Eighteen of the "cannot locate" items were on the shelf or in circulation which reduced that percentage to 2.5. A small number of additional errors resulted in minimal percentage changes. Recommendations which evolved from an attempt to improve services were:

1. Substitution of photocopies for original items to libraries within the proposed medical center complex.
2. Purchase of current materials requested which were not owned.

* Cruzat, Gwendolyn S. An Evaluation of the Interlibrary Loan Service Wayne State University Medical Library. III. Determination of Cost for Processing Interlibrary Loans. Wayne State University School of Medicine Library and Biomedical Information Service Center. Report No. 17, March 1966.

3. A cooperative binding method for most used titles.
4. Improvement in bibliographic verification by network libraries.
5. Improvement in WSUML stack maintenance. (10)

A preliminary study to ascertain the role of another major resource library, the Detroit Public Library (DPL), in providing service to the biomedical community revealed that only three of the 65 titles requested were for biomedical titles and these were owned by WSUML. Further testing of needs and performance with regard to document delivery for the biomedical community could then be confined to WSUML and the biomedical library network of Southeastern Michigan. (8)

Further investigation of interlibrary loan in Southeastern Michigan enabled identification of the groups within the biomedical community who were availing themselves of interlibrary loan services in their respective institutions. When interlibrary loan service for one group of users, house staff, was analyzed for two hospital libraries, it was found that in one library an interlibrary loan request per year was processed for each house staff, and in the other six requests were processed for a similar period. (1) Further variation was shown when an analysis of individuals requesting interlibrary loan service in 25 health care institutions of the library network was made. From a user population of 1,258 the medical staff comprised 586 or 40% and initiated 2,314 or 36% of the requests averaging a little less than four per person. House staff represented 376 or 27% of the users and initiated 2,046 or 31% of the requests averaging a little more than five per person. Paramedical personnel 296 or 20% of the users and generated 997 or 15% of the requests averaging three items per person.

In terms of total medical staff populations at these institutions only 11% used the service whereas 30% of the house staff did so. After analysis of data regarding the average number of requests per staff member based on total medical population at these institutions, conclusions could be made that a health sciences library should be organized to borrow about one item for each of its medical staff, four for each house staff and one for each professional staff. (15)

In order to determine the purpose or need for interlibrary loan service and its effectiveness from the viewpoint of the requester, i.e., relative to educational, research or clinical use of

materials secured, 1,191 interlibrary loans generated by 393 users in 16 teaching hospitals were analyzed. One hundred eighty-five or 47% of the total number of users were physicians, 119 or 31% were house staff and 89 or 22% were other professional staff. The major reason for requesting interlibrary loan service given by 45% of the users was research; 33% needed information to support educational functions of the hospital; and 35% requested materials for use in patient care. (23) When data were analyzed previously from the 25 health care institutions participating in the library network survey, thought was given to the establishment of some base or formula that could be used to determine whether or not hospitals were allocating sufficient funds for support of library services. Comparison of data from the two studies showed that a similar pattern existed when groups requesting the services were compared. An increase in the service was also apparent in an almost 2 to 1 ratio. However, no discernible pattern was realized when individual institutions were examined with regard to making comparisons in service. Since these libraries were offering primarily the same services, these variations would seem to indicate that some internal factor within their respective environments other than library services was playing a substantial role. (15,23)

Reference Services

Study of reference services at WSUML was an attempt to quantify to some degree the whole area of reference services. An assumption was made that this area of service was as amenable as that of interlibrary loan to quantitative measurements. As yet no analyses of collected data have been made in this area, although computer printouts of the recorded information have been secured. General observations of these printouts reveal that patterns in preferential differences of individual librarians with respect to steps in providing reference services is a major factor in use of bibliographic instruments.

Bibliographic Control and Administrative Mechanism

The availability of serials in Michigan resource libraries is of necessity important to biomedical network libraries. Of the total number of serials indexed in Index Medicus four major Michigan libraries own 86%. The 14% not owned can clearly be classed as seldom used journals. (2) Further investigation regarding serials identified only 187 of the 2,434 titles currently indexed as having volumes available in microform implying that the day in which a resource library could be reduced to microform has not yet arrived and reinforcing the need for strong local resources. (9)

In a study of areas of use, that is, circulation, room use, and interlibrary loan, in a hospital library, Children's Hospital of Michigan conducted a study to determine whether or not retention of older periodicals was justified. In each area reader interest was focused on recently published material. Less than 5% of material used was more than 15 years old. Those in the most recent five years had the heaviest use. Test of validity of the use patterns by the use of chi square revealed that the method used in this study is applicable to any library that evaluates figures for the same areas of use to determine its pattern of reader use for a three month period. (25)

Librarians representing nine biomedical libraries evaluated book needs of hospital libraries in Southeastern Michigan by identification of their respective book collections, titles they would consider for addition or deletion and titles that would be selected if there were unlimited funds. The result was a Classified Checklist of Medical Reference Books and Libraries recommended for all hospital libraries in the area. However, this compilation demonstrated that no one "core" list of books can serve as an adequate standard of evaluating library collections since no two libraries owned or even wanted to purchase the same titles. (6, 13) A revised list, Checklist of Medical Monographs was the result of selection choices of 21 librarians in the area. (26)

Investigation into the techniques of processing library materials revealed that the subject headings assigned by Library of Congress and the National Library of Medicine to 382 texts and monographs considered basic by nine biomedical librarians were virtually the same with respect to coverage. Total headings were compared, evaluated according to the books they described and assigned scores on the comprehensiveness of the headings. The results were: 1) 20% of the headings were unique to each system, 2) better headings were possible in 30% of the cases and 3) scoring produced a 60% agreement in headings. (17)

Further study of processing techniques determined that certain of these techniques were more applicable and time-saving in libraries of the network than others. For a 120 day search period, 147 titles suitable for a hospital library were studied in relation to availability of bibliographic information from two major sources, the National Library of Medicine (NLM) and the Library of Congress (LC). Although this sample was relatively small, it revealed that 1) LC bibliographic information appears on the average of one month earlier than that of NLM, 2) libraries using a similar search period and LC bibliographic information will catalog originally one out of fifty titles as opposed to one out of four for those using NLM and 3) the WSUML alerting service through its monthly acquisitions list compares more favorably in

its usefulness to the network as far as speed is concerned than Current Catalog. (16) When the medical school library was examined in terms of these same processes, the same pattern was observed. Data were compared for 1) titles for which information was available the day the book was received at WSUML, 2) titles for which information was available only after the book was received and 3) the relative availability pattern which developed through the search period. Bibliographic information was consistently published earlier, usually one to two months, by LC than by NLM. The decision to use LC or NLM by individual libraries should be based on the number of titles to be cataloged at the end of a search period and the cost of searching and typing cards as opposed to printed cards. (22)

The Biomedical Community

Access to the scholarly record of medicine by total health care personnel of a community is the prime function of any medical library network. Before the degree of access to library service can be determined, however, an assessment of the biomedical population in an environment must be made. To aid in this process for Southeastern Michigan environs, one hundred and eleven biomedical institutions and health care facilities in which health care personnel were employed were identified. (18) Further study into who constitutes the biomedical community and what percentage of the total resources is available to them was made by collecting data on physicians, both practicing and in graduate medical programs, and identifying the institutions in which they work. (4, 5, 14, 20, 21)

Questionnaire results revealed that Southeastern Michigan supported separate graduate medical education programs involving 1,543 students. The 38 institutions sponsoring these programs were entered into more than ninety affiliation agreements for their students. Library service in these institutions varied considerably. (4, 5)

The entire membership of 2,767 physicians of the Wayne County Medical Society was studied as to hospital appointments. It was found that although 2,767 physicians in 79 hospitals had a total of 5,664 hospital appointments, 3,023 of which were with full staff privileges, only 55% had potential access to the library resources of the area. Obviously, some way should be found to provide library service for the 698 physicians who did not have full staff privileges, and for the 435 physicians who had appointments in hospitals without library service. (14)

An effort to identify the total physician population of Southeastern Michigan and the number with access to minimal library service was made by securing staff lists of 57 hospitals within a

three-county area. A total of 4,239 physicians were identified, 2,588 of which were members of the Wayne County Medical Society. Fifty per cent had full appointments in at least one of 32 hospitals having library service; 25% had some appointment other than the full appointment and 25% had no appointment. Over 1,100 physicians in the area did not have access to any library services. The American Medical Association recorded a total of 4,725 physicians within the area which meant that there were 591 additional physicians without services. Twenty per cent of the hospitals shared staff with 40 or more other hospitals, and 50% shared staff with 25 or more other hospitals. This sharing of staff seemed to indicate that perhaps rather than each hospital attempting to provide "complete library services" the major teaching hospitals should extend their services to other hospitals and these hospitals should contribute towards the financial support of such services. (20)

When the physician staff of 16 osteopathic hospitals in Southeastern Michigan was examined, 813 physicians who make up 48% of the total D.O.'s in Michigan were identified. From these data only 40% of the physicians were found to have appointments in hospitals in which they could get dependable library services. These physicians held 1,858 appointments collectively; 1,723 (93%) of which were full appointments. Compared with other studies in which only 73% of M.D.'s were found to have full appointments, this figure is higher mainly because osteopaths at four hospitals automatically received full appointment at another hospital. Nine of the 16 hospitals maintained approved residency programs. Forty-four per cent or 278 of the total number of graduate osteopathic programs were in Michigan and 217 were in these hospitals. Library services would seem to appear almost mandatory in these institutions. (21)

Biomedical Librarianship and Social Institutions

More research in librarianship is needed because of the pressures placed on the nation's libraries. The rationale of the health sciences library as an object of study and its place among social institutions of our society were explored. The fact that a health sciences library can only be identified as an object of study through the institutional setting in which it operates and the subsequent lack of comparative studies about health sciences libraries was emphasized. (24) A closer examination of the structure of social institutions and their value to society aimed at the importance of creating measuring instruments which can demonstrate the value of libraries was made. Libraries must begin organizing so that they are able to take a more active role in effecting change in society through positive decisions based on 1) examination of available information, 2) examination of possible decision alternatives, and 3) construction and examination of objectives consistent with one's philosophy of society. (27)

ACHIEVEMENT OF STATED AIMS

At the beginning of an investigative project, aims often have to be stated in general terms. Although a frame of reference had been decided upon based on earlier descriptive studies, the available data were much too fragmented to arrive at any testable hypothesis. The object of study was human institutions which survive through cooperation, conflict, and competition. Sitting up a situation to collect data in an on-going operation often causes the institution to change. As a result generalizations about a dynamic situation are difficult to make. Although data were collected in all areas that were originally proposed, three things should be noted.

1. Once data are available which describes or contributes to a generalization which can serve as a base to work toward better management and to formulate plans, the object of study, in this project an existing informal library network, begins to alter resulting in a new configuration.
2. A project as this one, then, becomes an investigation in methodology for collecting data that can result in better planning and management.
3. When a changing environment is under investigation new problem areas are identified which need to be studied; some specific areas that this project revealed are
 - a. A description of the actual library services given in different institutions.
 - b. What performance levels can be expected given constraints of staff, facilities, and space.
 - c. The relative cost for supporting alternative administrative organizations to provide services.
 - d. The determination of spatial requirements for efficient operation of library network units.

Although not stated explicitly in the original proposal, the project has been able to identify new objectives for continued study.

1. The individual and institutional reaction to administrative reform in network library services.
2. The identification for irrational or conflicting purposes in interinstitutional relationships.
3. Validation of generalizations that are understood or guessed at intuitively.
4. Realization that administrative operations are amenable to quantification.
5. The interrelatedness of the variables in a library network that operate in initiating reforms, and
6. Identifying variables that are possible to control and manipulate.

CONCLUSIONS

In 1965 three major changes in the social and economic structure of American society made this project one of major consequence in Southeastern Michigan. They were: 1) Medicare, 2) Medical Library Assistance Act and Regional Medical Programs, stressing cooperation, and 3) the changing image of the hospital as the health center. This project was predicated on two major assumptions. First, maximum library service should combine complete evaluation and analyses of pertinent data, coordination of services, and a responsibility for access of services to the total biomedical community. In other words, efforts should be made to offer to the biomedical community on a continuing and constant basis total access to the scholarly record of medicine. The designation of medical library network was used to identify the purveyor of this service.

The second assumption was that participation in a network by the medical libraries of an area would permit them to extend their services and to prepare them to deal more easily with the complexities of an advancing technology and the increasing demands of the biomedical community. One of the more important aspects of this area of study was the examination of the interlibrary loan and other cooperative mechanisms using various methods of measurement for different analyses. Administrative mechanisms have evolved from study of bibliographic techniques, cooperative evaluation of biomedical collections and statistical analysis of use figures. Definitive cost studies of interlibrary loan services and bibliographic techniques have revealed economic consequences

of these ventures. Hypothetical models have been presented as bases for comparative studies or for adaptation to specific environments. In the area of reference services and bibliographic services in hospital health sciences libraries evaluations which will hopefully prove useful are still being made.

One of the particular outcomes of this project was the realistic question concerning whether or not the investment society makes in its libraries is a constructive one and the cold implication of the fact that although library statistics have been gathered over the years, few have been analyzed and compared with similar analyses in other specialized libraries. This latter statement seems almost chimerical when one looks at the infinite amount of quantitative investigation which has been undertaken in almost every type organization to determine what makes the most effective distinguishable from the least effective. Studies have been made in industry and business, in universities and institutes, and in hospitals and governmental agencies where there has been recognition of the fact that careful collection, evaluation and comparison of data is necessary so that problems can be ascertained long before they become difficult.

The fact that libraries undoubtedly differ markedly in their effectiveness is not debatable, but there are virtually no carefully designed systematic studies of how the more effective differ from the less effective. This project has revealed some of the factors which would contribute to the determination of the effectiveness of health sciences libraries in that it has explored some types of biomedical libraries in Southeastern Michigan, how they are organized and function with regard to services offered, and the types of problem solving procedures that are used.

This project also dealt with the cooperative structure within the biomedical library community of Southeastern Michigan that realized the need for use of the total resources of the community in providing library services for it certainly is not a study WSUML could have initiated unaided. No single institution could have. This project is the result of a cooperative venture among biomedical libraries which realized the need for quantity control of medical library services and an efficient system to meet that need.

The institutions of the biomedical library network recognized the importance of a group pattern of operation and the fact that none could work as discrete entities. Although the objectives of the group as a whole were identified, the objectives of activities of each component library were also

included as part of the total objectives. Not only was each member library able to contribute ideas and data, but participation in the survey of medical library problems and problems of library access to the biomedical community allowed a clearer idea of objectives and a sense of responsibility for the decisions. This was also true with respect to the contributions of the Greater Detroit Hospital Council and the Wayne County Medical Society without whose cooperation much of this project would have been impossible.

In addition to initiating the structure of a biomedical library network in Southeastern Michigan, another outcome of the project was the continuing attempt at comprehensive service. Although interlibrary loan service showed a heavy use of local resources, an indication that WSUML is an active and strong resource institution and that cooperation among library network and other institutions in the area was at an 82% level in supplying materials, the use of this service by medical staff and personnel of these institutions was not equitable. These variations must indicate lack of equitable services or patterns of service or must be evidence of diversified policies. It is recognizable that many details of library organization may vary with regard to institutions, but the general pattern should provide for essential services such as interlibrary loan through either the institution itself or locally related institutions. It is also recognizable that all biomedical personnel will not always avail themselves of these services, yet if they are presented to all biomedical personnel as a corollary to good health care use of these services would follow.

"...As a society we have more knowledge than we have know-how. As a result the benefits of scientific progress are not accessible in equal portions to all the people of the nation." * This statement by Wilbur Cohen seems apropos to further describe the inequities found within the biomedical community of Southeastern Michigan regarding access to the scholarly record of medicine. With the hospital as the hub of the health care wheel, the fact that over 1,100 M.D.'s in the area did not have access to any library service is appalling. Inclusion of the number of D.O.'s without library service represents a substantial increase to this figure.

These significant data indicate that not only must the health sciences libraries examine their roles with regard to the provision of access to the scholarly record of medicine within their own respective environments, but the hospital institutions of which many are a part as well. Like anything of quality,

* Cohen, Wilbur, J. "A New Era in Medical Care". Conference on Regional Medical Programs, Proceedings. Washington, D.C., 1965. P. 9.

excellence costs money. These institutions must choose between being second-rate institutions and giving excellence in patient care. Medical education of the physician today cannot end with the receipt of the M.D. or with the completion of an internship or residency. It is a lifelong process and the university and the hospitals are deeply involved in the continuation of this process. The cost of providing these services, as indicated by the cost figures for interlibrary loan alone could amount to a substantial sum. If based on the same principle as the sharing of medical staff concept, the medical library network with the academic medical library as the action center and coordinator of these services, would be a vehicle for delivery of library services to any institution or person within the biomedical library community area. Some mechanism for payment or exchange for services could be effected on the same basis as for radiological or laboratory services in the hospital. In conclusion these studies presented certain aspects about problems in medical librarianship that are far from being resolved. The value of services oriented towards the comprehensive medical care that is advocated today still leave unanswered the following questions:

1. What are the library needs of the biomedical community in this era of rising expectations of the whole field of health care?
2. How can those who comprise this community be kept abreast of increasing new knowledge and technologies?
3. Do biomedical librarians have a responsibility to provide leadership and indicate the proper course of action?

In the final analysis the major significance of this project will rest on four contributions. First, it is one of the very few in which a prolonged attempt has been made to evaluate quantitatively the structure and services of medical libraries. This extensive attempt has had some clearcut conclusions, but more importantly it has suggested patterns for future study. Second, it provides insight into the dilemma and implications for access to biomedical library service for the total biomedical community. Third, it provides structural relationships and subsequent interactions among the institutions of a biomedical library network. Fourth and most importantly, it reemphasizes the need for comparative data about all aspects of medical libraries; data which will enable librarians to predict the demand for service and the changes that are likely to occur; data about the biomedical community, demographic data, age group data, data on attitudes about the need for library service and methods of providing it, characteristics of service in terms of demand and supply; data on materials, services and equipment; data on cost; what costs vary, why they vary, what costs remain constant, do they

change when the services change, and patterns in terms of time covered. Change in any system causes change in responsibilities among those involved. The question is whether or not medical librarians are willing to review current practices, test new modes of service and examine their performance in order not only to know where they stand today, but where they will go tomorrow.